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Three effective tools in the fight against Alzheimer's disease

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Detection, prevention, and preclinical treatment are three key areas that may make a difference in the battle to reduce the rapid rise of new Alzheimer's disease (AD) cases every year. These three topics are the focus of an important new supplement to the *Journal of Alzheimer's Disease*.

Organized by Guest Editor Jack de la Torre, MD, PhD, Professor of Neuropsychology at The University of Texas at Austin, the supplement is a novel guide to how Alzheimer dementia may be approached and managed right now, not years from now. It includes 23 articles contributed by an international group of noted AD experts. "This issue will be of interest to established researchers and young investigators seeking a broader knowledge of the AD problem, as well as to clinicians who deal with elderly patients or with individuals who may show up at their clinics as outpatients showing signs of cognitive dysfunction," notes Dr. de la Torre.

Coverage of detection includes insightful reviews and discussions of techniques and strategies that seek ways to identify AD before it starts, such as risk factors to dementia, retinal pathology, cardiovascular disorders, neurocognitive testing, assorted brain markers, hemodynamic changes, and neuroimaging assorted brain lesions.

In the area of prevention, investigators explore how a multidisciplinary approach involving brain and heart specialists can better create a plan of intervention for patients at risk of AD or for people presenting

preclinical signs of dementia. Additional reviews in prevention include risk assessments to dementia, lifestyle and cognitive counseling to maintain normal cognition, and established preventive techniques that can help delay AD onset.

The final topic centers on pre-clinical AD treatment. Contributions suggest how effective pre-clinical treatments of AD offer the hope of significantly lowering skyrocketing incidence while extending healthcare and quality of life.

While these treatments are still at the experimental stage, they may offer a departure from the failed attempts of amyloid-beta therapy. As an example, a team of researchers at the University of Texas at Austin led by Dr. Francisco Gonzalez-Lima have demonstrated that oral administration of methylene blue, a substance used since the 19th century to treat many medical disorders, lessens learning and memory loss in rats with a poor blood supply to the brain caused by chronic cerebral hypoperfusion. Chronic cerebral hypoperfusion in older people has been shown to be an important risk factor in Alzheimer's disease. Methylene blue appears to improve memory and learning in these animals by increasing mitochondrial energy activity in the brain. Mitochondrial energy dysfunction in the brain is not uncommon during advanced aging in the presence of disorders such as carotid occlusion, hypertension, brain trauma, diabetes, heart disease and stroke. Mitochondrial respiration leading to cognitive decline is also affected years before the onset of Alzheimer's disease in predisposed individuals. The results of this study suggests that daily oral administration of low dose methylene blue USP in elderly people at risk of Alzheimer's disease can be a useful treatment to prevent the start of memory decline or the beginning of Alzheimer's disease.

According to Dr de la Torre, "It seems an auspicious moment to open a dialogue between those pursuing a treatment for AD and those favoring

prevention of this dementia. Such a dialogue could lead to a more effective course of action in confronting the needs of AD patients and those at risk of developing this disorder. The reviews contained in this supplementary issue of JAD may set the stage for such a discourse and in addition, provide some viable tracks on the road to discovering a realistic pathway for coping with this grim disorder."

More information: Alzheimer's Disease: Detection, Prevention, and Preclinical Treatment. *Journal of Alzheimer's Disease*, Supplement 4, (October 2014)

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